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CS-05780/62/KH-A

8 June 1962

MEMORANDUM

SUBJECT: Soviet Capabilities for Passive Countermeasures Against
US Photographic Reconnaissance Satellites

1. The Soviets are clearly concerned over the present and future potentialities of various US satellite photographic reconnaissance systems, and may undertake passive measures to counter these systems.* Camouflage and deception are the main techniques available to the Soviets for this purpose.

2. First priority in any such effort would probably be given to protection of important Soviet military strengths. The only recent evidence of Soviet interest in this field relates to missile forces. Other important targets such as urban industrial areas, nuclear production and storage complexes, and military airfields, present far more difficult problems for camouflage and deception. However, concealment of small key elements may be attempted.

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This paper is concerned only with capabilities of present US systems and takes no account of potential improvements in these systems.

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3. The most detailed description available of the camouflage and deception techniques which might be employed at fixed sites appeared in a classified Soviet military journal published in September 1961, which discussed, inter alia, passive countermeasures against aircraft and satellite reconnaissance. According to this article, camouflage measures include concealment through the use of natural environment, artificial materials, and dummy structures. Deception techniques mentioned include the use of simulated sites, decoy thermal objects, and special radar reflectors to divert attention to false targets. The article advocated use of camouflage to conceal construction activity as well as operational missile sites.

4. Except for crude attempts, detected several years ago, to camouflage one surface-to-air missile site in East Germany and a missile site in the Crimea, we have no evidence that any of these techniques have been employed to date. A change in the appearance of one Soviet MRBM site at Yel'sk between KEYHOLE missions of June 1961 and April 1962, initially suggested the possibility of camouflage. However, upon more detailed analysis, we have concluded that this change was caused by an increase in natural vegetation and by the greater shadow in the April 1962 coverage. The lack of any attempt to conceal roads, rail lines,

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housing and support facilities at this and other sites on the main service road also weighs against the likelihood that deliberate camouflage has been attempted. We feel confident that none of the ICBM or MRBM sites observed in good-quality photography are dummies, and analysis of the whole body of KEYHOLE photography of missile sites has uncovered no evidence that any of them are dummies.

5. The chances of any large scale and successful concealment seem very remote at present in the light of our observation of numerous strategic missile complexes under construction, with normal construction progress observable in repeated coverage. These complexes are large and distinctive. They involve extensive installation of roads and support buildings as well as launchers themselves. In the case of ICBM complexes, extensive rail support is also installed. Complete concealment of missile complexes against overhead observation would be extremely difficult and expensive, and during the construction period, which lasts many months, virtually impossible. Thus, we do not believe that the Soviets could achieve such success by these means against KEYHOLE photography of the quality and frequency now being

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obtained. For similar reasons, we do not believe the Soviets could effectively deceive us through the widespread construction of dummy sites.

6. We do not exclude future Soviet attempts to thwart US photographic intelligence collection and to compound targeting problems by the use of camouflage and deception. For the present, however, Soviet efforts to enhance the survivability of missile forces have taken other directions. Missile complexes have been dispersed widely over the USSR, launch sites have been separated by distances of 3-5 n.m., and surface-to-air missile sites have been deployed at ballistic missile complexes to provide protection against air attack and reconnaissance. Security measures have included concealment from ground observation and the imposition of strict communications security procedures. More urgent survivability measures are now indicated by evidence suggesting construction of hardened ICBM launchers and by attempts to reduce reaction times throughout the missile forces. No effort at hardening MRBM/IRBM sites has been observed. In addition to the survivability measures already described the Soviets apparently are relying on the use of alternate launching positions to protect these forces.

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7. We conclude that for the next few years Soviet efforts to assure survivability of long range missile forces are more likely to emphasize the reduction of physical vulnerability and the improvement of operational capabilities than the widespread use of camouflage or deception. We believe it even less likely that the Soviets would attempt concealment of other major targets.

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